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Education

The Ohio State University

Doctor of Philosophy: AED Economics 2015
Dissertation: Essays on the World Food Crisis: An Assessment of Policy Options
Advisor: Dr. Mario J. Miranda
GPA: 3.897
Master of Arts: Economics 2011

The London School of Economics and Political Science

Master of Science: Econometrics and Mathematical Economics 2003

Universidad de Costa Rica

Licentiate: Economics 2002
Thesis: Pass-through en Costa Rica (Summa Cum Laude)
Advisor: M.Sc. Anabelle Ulate Quirós
Bachelor: Economics 2000

Academic Experience

Universidad de Costa Rica

Since October 2015

Researcher, Instituto de Investigaciones en Ciencias Económicas

Current research is focused on business cycles, optimal government size, and DSGE modeling.

The Ohio State University

October 2008 - August 2015

Instructor, Department of AED Economics

Taught the courses on Economic Development of Latin America (Spring 2012 and Spring 2011) and Economics of Food, Population and Environment (Winter 2012 and Summer 2011).

Research Assistant

Developed spatial-temporal rational expectations equilibrium models to analyze the impact of China's integration on the world grain markets.

Teaching Assistant

Advanced Quantitative Methods; Principles of Agribusiness Finance; Economic Development; Economic Development of Latin America; Economics of Food, Population and Environment .

Universidad de Costa Rica

March 2004 - July 2006

Instructor, Economics Department

Taught courses in the graduate (Advanced Econometrics I and II, Advance Macroeconomics I) and undergraduate (Econometrics II, Intermediate Econometrics) programs.

Other teaching activities

2014 AAEA Annual Meeting, Minneapolis, MN July 2014
Pre-conference Workshop on Applied Computational Economics. Joint with Mario J. Miranda and Dmitry Vedenov

Central Bank of Costa Rica September 2009
Workshop on computer programming using MATLAB, with applications to econometrics (24 hours)

Universidad Autónoma de México May 2006
Workshop on regime-switching models for graduate students (10 hours)

Professional Experience

Inter-American Development Bank July 2006 - July 2008
Research Analyst, Research Department

Collaborated on research about the impact of external factors on Latin America's economic growth. Conducted macroeconomic analysis of current trends in Central American countries.

Central Bank of Costa Rica July 1999 - July 2006
Economist, Monetary Department

Conducted research on monetary economics topics. Improved the operations of computing the monetary program. Coordinated the compilation of the first International Investment Position of Costa Rica. Improved the quality of the statistics on public external debt of Costa Rica. Taught two courses on econometrics to fellow economists.

Additional Training

United Nations-ECLAC-SECMCA *San José (Apr. 2005), Guatemala City (Aug. 2005) and Santo Domingo (Feb. 2006)*
Regional Seminars on Econometric Models

Banco de España *Madrid (Dec. 2004)*
Seminar on Central Banking

International Monetary Fund *Washington, DC (Dec. 2001)*
Course on Financial Programming and Policies

Honors

Bronze Medal 10th Ibero-American Mathematical Olympiad: *Vina del Mar, Chile (Sept. 1995)*
Best Economics GPA Universidad de Costa Rica (1996)

Skills

Computer Software MATLAB, R, Python, Stata, EViews, SAS, Dynare, L^AT_EX
Languages English and Spanish

Sustainability of Regional Food Reserves When Default Is Possible. (with M.J. Miranda and J.W. Glauber) Selected Paper for the 2015 International Conference of Agricultural Economists, Milan, Italy.

Abstract: We model a regional grain reserve as a game of two countries that agree to pool together a fraction of their grain to cope with production risk, but that can also repudiate their obligations at any moment. The reserve can be operated as a “credit union” or an “insurance union”. We find that although risk sharing is more effective when production shocks are negatively correlated, the regional reserve is more sustainable when the correlation is positive. We also find that an “insurance” game can be more sustainable than a “credit” game.

Drivers of the World Grain Price Crisis in the Short- and Long-Run: A Spatial-Temporal Rational Expectations Equilibrium Approach. (with M.J. Miranda) Contributed Paper for the 2014 ZEF-IFPRI Workshop on Food Price Volatility and Food Security, University of Bonn, Germany.

Abstract: We examine several proposed drivers of the 2007-2009 World Food Price Crisis, including: *i*) low grain stock levels, *ii*) trade restrictions imposed by wheat exporters, and *iii*) diversion of corn production to biofuels. To quantify their effects on grain prices we develop a stochastic spatial-temporal equilibrium model of global wheat and corn markets, featuring six interdependent markets, random yields, endogenous acreage, speculative storage, and government policies on trade and stockpiling. The simulations indicate that wheat export bans and increased wheat stockpiling can explain significant rises in wheat prices and modest increases in corn prices in the short-run, but that the effects of these policies on wheat and corn prices are negligible in the long run. In the long run, sustained increases in wheat and corn prices are best explained by surging demand for biofuels, through its effect on permanently diverting acreage from wheat to corn.

Food Security for Whom? The Effectiveness of Food Reserves in Poor Developing Countries. (with M.J. Miranda) Selected Paper for the 2014 AAEA Annual Meeting, Minneapolis, MN.

Abstract: During the Global Food Price Crisis of 2007-2011, millions of people suffered from hunger because food had become expensive. To cope with this problem, the governments of several countries decided to establish public food reserves in order to stabilize domestic prices. Here, we develop a model to evaluate the optimal grain storage policy for a poor grain-importing country. Households are heterogeneous in their income endowment, and those who cannot afford enough food suffer from hunger. The international price of grain follows a Markov process with two states (tranquil periods and food crises), and households are unable to self-insure against changes in this price. The objective of the reserve operation is to reduce hunger rates. The model captures the trade-off in implementing the policy: raising a stock to prevent hunger tomorrow requires resources that could be used to reduce hunger today. Parameters are calibrated to reflect food supply and demand in Haiti. The results suggest that rather than storing food, a better approach for a poor country is to focus on fighting poverty directly, since the modest social protection provided by a storage policy could be also be obtained through relatively small improvements in income per capita and income distribution.

The Global Food Price Crisis and China-World Rice Market Integration: A Spatial-Temporal Rational Expectations Equilibrium Model. (with X. Liu, S. Chen and M.J. Miranda) Selected Paper for the 2013 AAEA Annual Meeting, Washington, DC.

Abstract In this paper, we examine how China, the world’s largest rice producer and consumer, would affect the international rice market if it liberalized its trade in rice and became more fully integrated into the global rice market. The impacts of trade liberalization are estimated using a spatial-temporal rational expectations model of the world rice market characterized by four interdependent markets with stochastic production patterns, constant-elasticity demands, expected-profit maximizing private speculative storers, and government stockpiling authorities. The results show that full entry by China into the world rice market will substantially reduce and stabilize the world rice price, reducing the risk faced by major importers, particularly price spikes caused by restrictive trade policies implemented by major exporters.

Booms and Busts in Latin America: The Role of External Factors. (with A. Izquierdo and E. Talvi) Inter-American Development Bank, Working Paper 631, February 2008

Abstract This paper analyzes the relevance of external factors in average quarterly GDP growth for 1990-2006 in the seven largest Latin American countries (LAC7). Modeling the relationship between LAC7 GDP and several external factors, it is found that those factors account for a significant share of variance in LAC7 GDP growth, and that external shocks produce significant responses. Likewise, a significant share of recent LAC7 growth performance can be explained by an external factor “tailwind.” Also evaluated is the impact of deterioration in external financial conditions. Finally, the relevance of these findings for policy evaluation is emphasized. Growth performance, the strength or weakness of macroeconomic fundamentals and the impact of domestic macro

Effects of Trends in Chinese Production, Consumption, and Price Support Policies on World Grain Price Volatility and Food Security. (with M.J. Miranda and J.W. Glauber) Invited paper for the Food Price Volatility, Food Security and Trade Policy Conference, World Bank, September 18-19, 2014, Washington DC

Abstract: In this paper, we develop a structural dynamic stochastic simulation model of the world market for a generic storable food commodity and use it to explore how global commodity price volatility and general food security will be affected by recent and anticipated future changes in Chinese commodity trade and price support policies and trends in Chinese agricultural production and consumption. Our analysis will focus on two major commodities, wheat and corn.